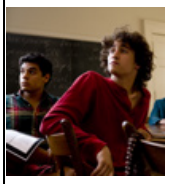

No man, who continues to add something to the material, intellectual and moral well-being of the place in which he lives, is left long without proper reward.

Booker T. Washington

Science at 47,000 Feet: St. John's College Student is First Undergrad to Fly on New NSF Research Aircraft

Santa Fe, NM – Michael Curry, an undergraduate student at St. John's College in Santa Fe, has just completed a rare feat: according to the National Center for Atmospheric Research (NCAR), Michael is the first undergraduate student to fly on the National Science Foundation's HIAPER Gulfstream-V research aircraft. HIAPER, the High-performance Instrumented Airborne Platform for Environmental Research, is a new "flying laboratory" for environmental research.

The historic flight took place on Friday, July 27. Michael helped test a new laser-based moisture instrument during a nine-hour flight from Colorado to the central Gulf of Mexico and back. This flight and others as part of the campaign sampled conditions ranging from the marine atmosphere over the Gulf of Mexico to stratospheric conditions near 47,000 feet. That's high: most commercial aircraft fly around 35,000 feet, on rare occasions going to 40,000 feet. The purpose of the research is to develop better moisture measurements for weather and climate prediction. Michael was part of a team of about a dozen scientists testing new instruments for this state-of-the-art research aircraft during a two-week flight campaign that ended July 31.

Michael is a NSF REU (Research Experience for Undergraduates) intern this summer working with Mark Zondlo, Senior Research Scientist at Southwest Sciences, Inc. (SWS). The NSF REU program is designed to bring undergraduates into research laboratories and contribute to active research projects.

This is the second year that Southwest Sciences has collaborated with a St. John's student. Last summer, Kate Brubaker (who graduated from St. John's in May 2007) conducted laboratory studies of this instrument and presented her results at the American Geophysical Union (AGU) fall meeting in San Francisco, where over 13,000 geoscientists from all over the world gathered for a weeklong conference. AGU estimates that only about one percent of all presentations are given by undergraduates; students from small liberal arts colleges such as St. John's certainly would be a much smaller percentage of that total. Financial support for the REU students came jointly from NSF's Atmospheric Chemistry program and Industrial Innovations and Partnerships program.

The REU projects are part of larger NSF projects at SWS to develop an accurate water vapor instrument for both HIAPER and weather balloons. Water vapor plays a critical role in the Earth's climate, weather and chemistry (for example, in climate change and ozone layer recovery). HIAPER presents new challenges to measurements because the Gulfstream-V jet is fast, long-range, reaches high altitudes, and requires smaller and lighter instruments. SWS's instrument uses a new type of laser, which can scan two absorption lines of water vapor (at a rate of 25 times per second) to measure conditions ranging from the very humid tropics to the extremely dry stratosphere.

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